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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,814	01/15/2002	Joseph M. Fukumoto	PD-01W023	3118
23915	7590	06/04/2004	EXAMINER	
PATENT DOCKET ADMINISTRATION RAYTHEON SYSTEMS COMPANY P.O. BOX 902 (E1/E150) BLDG E1 M S E150 EL SEGUNDO, CA 90245-0902				LEE, JOHN D
		ART UNIT		PAPER NUMBER
		2874		
DATE MAILED: 06/04/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application N .	Applicant(s)
	10/045,814	FUKUMOTO, JOSEPH M.
	Examiner	Art Unit
	John D. Lee	2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 06 April 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-6,8-28 and 31-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1-6,8-24,26-28 and 31-53 is/are allowed.
- 6) Claim(s) 25 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 06 April 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date. _____.   |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

This Office action is responsive to applicant's amendment submitted on April 6, 2004. Claims 7, 29, and 30 have been canceled. Claims 31-53 have been added. Claims 1-6, 8-28, and 31-53 are now pending and subject to examination. The corrected sheet of drawing filed with the amendment is approved.

Applicant's amendments have obviated the previously indicated objections to the specification and abstract, as well as the previously indicated rejection of claims 13, 14, 16, and 17 under 35 U.S.C. § 112, second paragraph. Such objections and rejection are, accordingly, withdrawn. Applicant's response has overcome the previously applied rejections under 35 U.S.C. §§ 102(b) and 103(a) based upon the Chandra et al reference. The rejection of claim 25 based on 35 U.S.C. § 112, first paragraph, however, is maintained.

Claims 37, 39-42, 44, 45, 47, and 48 are objected to because of the following minor informalities. New claim 37 is identical to claim 5; thus it is believed that claim 37 is intended to depend from claim 36. The dependencies of new claims 39-42, 44, 45, 47, and 48 should be revisited and corrected, as necessary, since there presently is no antecedent support for "said first and second reflective means" (claims 39, 41, and 42), "said fifth wavelength" (claims 39, 44, 45, 47, and 48), and "said sixth wavelength" (claim 41).

The following is a quotation of the first paragraph of 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 25 is rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled

in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 25 recites an invention wherein the fourth wavelength (the final converted output wavelength) is in the range of 4.0 to 4.8 microns. Such an invention, however, is not taught in the specification. All embodiments therein are directed to inventions having a fourth wavelength (the final converted output wavelength) in the range of 8 to 12 microns. The only recitation of the wavelength range of 4.0 to 4.8 microns is found in Table I, but this range is for the signal wavelength, not the outputted fourth wavelength.

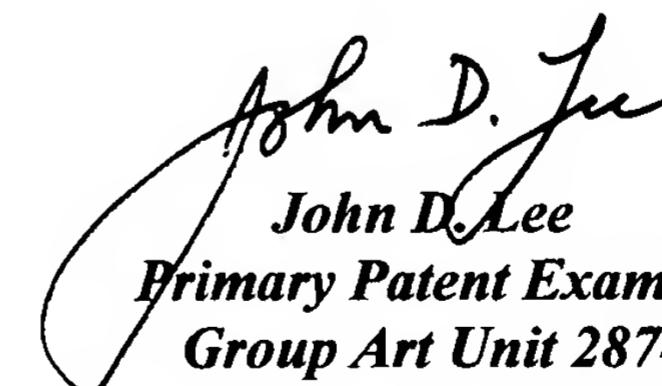
Claims 1-6, 8-24, 26-28, and 31-53 are allowed. The reasons for allowability were clearly stated in the previous Office action.

Applicant's arguments submitted on April 6, 2004, with respect to the rejection of claim 25 under 35 U.S.C. § 112, first paragraph, have been fully considered but they are not deemed to be persuasive. Applicant argues that a person of ordinary skill in the art would know that signal waves in the wavelength range of 4.0 to 4.8 microns are produced simultaneously with the 8-12 mm idler wavelength range produced in accordance with energy conservation of the 3.01 mm pump photon. First of all, the argument incorrectly states the wavelengths (8-12 **mm** idler wavelengths are actually 8-12 **microns** and 3.01 **mm** pump wavelength is actually 3.01 **micron**). Secondly, no evidence is provided to back up applicant's assertion that these are the wavelengths actually produced. Since the specification is silent and no supporting evidence has been submitted, it is not clear that a person of ordinary skill would know that the signal wavelengths in the 4.0 to 4.8 microns range are indeed produced. Thirdly, the claim recitation of the 4.0 to 4.8 micron **fourth wavelength is not the signal wavelength!** The argument is thus not persuasive.

**THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR § 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and an advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR § 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning the merits of this communication should be directed to Examiner John D. Lee at telephone number (571) 272-2351. The Examiner's normal work schedule is Tuesday through Friday, 6:30 AM to 5:00 PM. Any inquiry of a general or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562, to the technical support staff supervisor (Team 8) at telephone number (571) 272-1564, or to the Technology Center 2800 Customer Service Office at telephone number (571) 272-1626.



John D. Lee  
Primary Patent Examiner  
Group Art Unit 2874